

	A	B	C	D
1	Fred			
2	red			
3	ROD			
4	bride			
5	blue			
6	Ridge			
7	5			

Figure 245: Using the COUNTIF function

- 1) With the formula `=COUNTIF(A1:A6, "r.d")` entered in cell A7 and **Search criteria = and <> must apply to whole cells** deselected, the value 5 is displayed in cell A7, as shown in Figure 245. The formula counts cells in the range A1:A6 which contain "Fred", "red", "ROD", "bride", and "Ridge".
- 2) With the formula `=COUNTIF(A1:A6, "(?-i)r.d")` entered in cell A7 and **Search criteria = and <> must apply to whole cells** deselected, the value 3 is displayed in cell A7. The formula counts cells in the range A1:A6 which contain "Fred", "red", and "bride". This regular expression utilizes the "(?-i)" flag option to perform a case sensitive search.
- 3) With the formula `=COUNTIF(A1:A6, "r.d")` entered in cell A7 and **Search criteria = and <> must apply to whole cells** selected, the value 2 is shown in cell A7. The formula counts cells in the range A1:A6 which contain "red" and "ROD".
- 4) With the formula `=COUNTIF(A1:A6, "(?-i)r.d")` entered in cell A7 and **Search criteria = and <> must apply to whole cells** selected, the value 1 is shown in cell A7. The formula counts cells in the range A1:A6 which contain "red". This regular expression utilizes the "(?-i)" flag option to perform a case sensitive search.
- 5) With the formula `=COUNTIF(A1:A6, ". *r.d. *")` entered in cell A7 and **Search criteria = and <> must apply to whole cells** selected, the value 5 is again shown in cell A7. Contrast this with example 3) above – the regular expression in the current example allows for 0 or more characters both before the "r" and after the "d".

Regular expressions will not work in simple comparisons. For example: `A1="r.d"` will always return FALSE if A1 contains red, even if regular expressions are enabled. It will only return TRUE if A1 contains r.d (r then a dot then d). If you wish to test using regular expressions, try the COUNTIF function: `COUNTIF(A1, "r.d")` will return 1 or 0, interpreted as TRUE or FALSE in formulas like `=IF(COUNTIF(A1, "r.d"), "hooray", "boo")`.

Activating the **Enable regular expressions in formulas** option means all the above functions will require any regular expression special characters (such as parentheses) used in strings within formulas, to be preceded by a backslash, despite not being part of a regular expression. These backslashes will need to be removed if the setting is later deactivated.

## Advanced functions

As is common with other spreadsheet programs, Calc can be enhanced by user-defined functions or add-ins. Setting up user-defined functions can be done either by using macros or by writing separate add-ins or extensions.

The basics of writing and running macros is covered in Chapter 12, Macros. Macros can be linked to menus or toolbars for ease of operation or stored in template modules to make the functions available in other documents. Calc macros can be written in Basic, BeanShell, JavaScript, or Python.

Calc Add-ins are specialized office extensions which can extend the functionality of LibreOffice with new built-in Calc functions. A number of extensions for Calc have been written; these can be